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CURRENT LITERATURE

BOOK REVIEWS

Two new college texts

The two recent texts by GANONG and GAGER agree in the modern spirit evident in each, but they differ distinctly in the selection and arrangement of material. In GANONG's text[1] the arrangement of topics is primarily morphological. This arrangement will undoubtedly prove here, as it has in many an earlier text, its peculiar fitness for an introductory textbook, because of simplicity and its ready intelligibility to the beginner, who already knows the primary organs of the plant by sight and by name. In the 6 chapters of the body of the book the discussion in succession of leaf, stem, root, flower, fruit, and seed is carried out in each case with that close interrelating of structure and function which is essential to the clear comprehension of the relative significance and of the intimate interdependence of these two phases of plant organization. Each of these chapters includes a section on the economics and cultivation of the structure under consideration. The chapter on the flower contains concise but clear discussions of the significance of sex, of heredity, of evolution, and of plant breeding, while the following chapter has a brief section on plant diseases. Ecology and paleobotany are not discussed in this part.

The 274 illustrations include a considerable number of original ones, of which figs. 85 and 162 are excellent examples, and there are many less frequently copied ones from various standard works. It is not clear to the reviewer, however, that such synthetic diagrams as those of the leaf, stem, and root (figs. 11, 105, 166) are really needed by the average student. They do suggest, it is true, certain more important features of the structure and work of each organ, but because of the omission, for the sake of simplicity, of some other essential structures they are liable to be misleading. Properly selected, accurate drawings would avoid this objection and still be entirely intelligible. The reviewer is inclined to question also whether the substitution of drawings of models showing leaf arrangement, for figures of the stems and leaves themselves, is really necessary as an aid to the imagination of the ordinary college student. The second part, entitled "The kinds and relationships of plants," is expected to be ready during 1917.

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[1] GANONG, WILLIAM F., A textbook of botany for colleges. Part I. The structures and functions of plants. 8vo. pp. xi+401. New York: Macmillan. 1916.

GAGER's text[2] is evidently intended, like GANONG'S, as a guide for an introductory, cultural course for college students, which shall at the same time serve as a foundational one for students who are to pursue the subject further. The arrangement of topics, however, differs in being professedly physiological, at least in Part II, which corresponds most nearly to the body of GANONG'S book. Part I ("Introduction") deals with the organs of the cormophyte and the structure of the cell. Part II ("The vegetative functions of plants") includes chapters on the loss of water, absorption of water, the path of liquids in the plant, nutrition, fermentation, respiration, growth, and adjustment to surroundings.

Chapter IV, under the title "Loss of water," which does not very adequately forewarn the reader of the nature of its contents, discusses some of the essential facts of the gross morphology, histology, and physiology of the leaf. Chapter V ("Absorption of water") treats of the absorptive function of the soil root, but other functions and the structure of the root, aside from that of the root hairs, are not considered here, nor could anything but the briefest mention of them be found elsewhere in the book. Certain important features of the structure and activity of the stem also are either not referred to at all, or are barely mentioned. Thus, such tissues as bark, phellogen, cork, sieve tubes, etc., are not mentioned in the index, or more than incidentally referred to in the text. Secondary thickening, types of branching, the various habits assumed by the stem, the structure of buds, etc., are not given space for any real discussion or explanation. These omissions are apparently part of the plan of the book and are interesting as showing the author's estimate of the relative importance of these topics among the large number from which selection must be made.

The 26 chapters of Part III ("Structure and life histories") include discussions of the life histories of a considerable number of types, especially of the mosses, ferns, and flowering plants. The fern is made the primary type in these discussions of life cycles, and the whole series is rather copiously illustrated. Important and interestingly written chapters in this part are those dealing with the problem of sex in plants, the economic importance of fungi, evolution, Darwinism, experimental evolution, heredity, and paleobotany. The treatment of these themes, with the series of accompanying portraits of some of the great naturalists, serves to suggest something of the history of certain important botanical theories.

The book is abundantly illustrated with 434 figures, a good share of which are original drawings or halftones. While the appearance, for example, of such illustrations as figs. 127, 198, 263, and 286 is to be welcomed, the same cannot justly be said of some others. The use of such illustrations as figs. 37, 142, 151, 160, 165, or 180 would seem scarcely justified on grounds of mere novelty, when much clearer ones of the same objects are already available.—D. S. JOHNSON.

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[2] GAGER, C. STUART, Fundamentals of botany. 8vo. pp. xvi+640. Philadelphia: Blakiston's Sons. 1916.

MINOR NOTICES

North American flora.—The third part of Vol. 34 continues the presentation of Carduales by RYDBERG,[3] including the completion of the Tageteae and the Anthemideae. In the Tageteae 22 genera are recognized, the last 5 being presented in this part. Of these the large genera are *Pectis* with 71 species (11 new) and *Porophyllum* with 42 species (10 new). A new genus (*Hydropectis*) is described, based on *Pectis aquatica* Wats.

The recognized genera of Anthemideae number 21, a considerable number of them being segregated from more familiar genera. The largest genus is *Artemisia* with 120 species (29 new), followed by *Achillea* with 24 species (6 new). The other genera are represented by comparatively few species. Three new genera are described as follows: *Vesicarpa*, based on *Artemisia potentilloides* Gray; *Chamartemisia*, based on *Tanacetum compactum* Hall; *Artemisiastrum*, based on *Artemisia Palmeri* Gray.—J. M. C.

The theory of evolution.—SCOTT[4] has made an excellent restatement of the evidences of organic evolution. The somewhat hackneyed subject is enlivened by a forcible and very readable presentation. The book is the result of the organization of 6 lectures (the Westbrook Lectures for 1914). In addition to the evidences from classification, comparative anatomy, embryology, paleontology, and geographical distribution, the author presents evidence derived from domestication, from blood tests, and from experiment.

The opening chapter gives a brief historical review of theories of evolution and a concise statement of the present status of the question. I have seen no better presentation of this body of data for both biologist and general reader than that given in this little book. My only criticism is that it is insufficiently illustrated, although the few illustrations used are well chosen—H. H. NEWMAN.

A moss flora.—GROUT[5] has published a very convenient list of the moss flora of all counties of New York and New Jersey adjacent to New York City. The moss flora of this area has probably been explored more thoroughly than that of any other region of the United States. Numerous keys make the recognition of genera and species relatively easy, and the excellent photographic plates illustrate the genera. Such a publication should stimulate the study of a very interesting flora, for, as the author remarks, "in and around New York

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[3] RYDBERG, PER AXEL, North American Flora **34**:part 3. pp. 181–288. Carduales: Carduaceae (Tageteae, Anthemideae). New York Botanic Garden. 1916.

[4] SCOTT, W. B., The theory of evolution. 8vo. pp. vii+183. New York: Macmillan. 1917.

[5] GROUT, A. J., The moss flora of New York City and vicinity. 8vo. pp. 120. *pls. 12.* New Dorp (N.Y.): published by the author. 1916.